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\*Admitted only in Maryland \*Admitted only in Virginia •Practice Limited to Federal Agencies

November 8, 2004

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Art Unit 2832

Commissioner for Patents PO Box 1450 Alexandria, VA 22313-1450

Re:

U.S. Utility Patent Application

Application No. 10/664,404; Filed: September 17, 2003

For: Laminated Electro-Mechanical Systems

Inventors:

SHEN et al.

Our Ref:

2040.0410001

Sir:

Transmitted herewith for appropriate action are the following documents:

- 1. Information Disclosure Statement;
- 2. A listing of the cited references on Form PTO-1449 (10 pages);
- 3. Copies of the cited documents (AL1-AP1, AR1-AT1, AL2-AP2, AR2-AT2, AL3-AP3, AR3-AT3, AR4-AT4, AR5-AT5, AR6-AT6, AR7-AT7, AR8-AT8, AR9-AT9, AR10); and
- 4. One (1) return postcard.

It is respectfully requested that the attached postcard be stamped with the date of filing of these documents, and that it be returned to our courier. In the event that extensions of time are necessary to prevent abandonment of this patent application, then such extensions of time are hereby petitioned.

Sterne, Kessler, Goldstein & Fox PL L.C. : 1.100 New York Avenue, NW .: Washington, DC 20005 : 202.371.2600 f 202.371.2540 : www.skgf.com

Commissioner for Patents November 8, 2004 Page 2

The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

Jeffrey S. Weaver

Attorney for Applicants Registration No. 45,608

DJF/JSW:apg Enclosures

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## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

SHEN et al.

Appl. No.: 10/664,404

Filed: September 17, 2003

For: Laminated Electro-Mechanical

**Systems** 

Confirmation No.: 3195

Art Unit: 2832

Examiner: To Be Assigned

Atty. Docket: 2040.0410001

## **Information Disclosure Statement**

Commissioner for Patents PO Box 1450 Alexandria, VA 22313-1450

Sir:

Listed on accompanying Form PTO-1449 are documents that may be considered material to the examination of this application, in compliance with the duty of disclosure requirements of 37 C.F.R. §§ 1.56, 1.97 and 1.98.

Where the publication date of a listed document does not provide a month of publication, the year of publication of the listed document is sufficiently earlier than the effective U.S. filing date and any foreign priority date so that the month of publication is not in issue. Applicants have listed publication dates on the attached PTO-1449 based on information presently available to the undersigned. However, the listed publication dates should not be construed as an admission that the information was actually published on the date indicated.

Applicants reserve the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered.

This statement should not be construed as a representation that a search has been made, or that information more material to the examination of the present patent application does not exist. The Examiner is specifically requested not to rely solely on the material submitted herewith.

Applicants have checked the appropriate boxes below.

- ☐ 1. Statement under 37 C.F.R. 1.704(d). Each item of information contained in this
  Information Disclosure Statement was cited in a communication from a foreign
  patent office in a counterpart application and this communication was not
  received by any individual designated in 37 C.F.R. § 1.56(c) more than thirty
  days prior to the filing of this information disclosure statement.
- 2. Filing under 37 C.F.R. § 1.97(b). This Information Disclosure Statement is being filed within three months of the date of filing of a national application other than a continued prosecution application (CPA), OR within three months of the date of entry of the national stage as set forth in 37 C.F.R. § 1.491 in an international application, OR before the mailing date of a first Office Action on the merits OR before the mailing of a first Office Action after the filing of a request for continued examination under 37 C.F.R. § 1.114. No statement or fee is required.
- 3. Filing under 37 C.F.R. § 1.97(c). This Information Disclosure Statement is being filed more than three months after the U.S. filing date AND after the mailing date of the first Office Action on the merits, but before the mailing date of a Final Rejection, or Notice of Allowance, or an action that otherwise closes prosecution in the application.

a. Statement under 37 C.F.R. § 1.97(e)(1). I hereby state that each item of information contained in this Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(1). b. Statement under 37 C.F.R. § 1.97(e)(2). I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(2). c. Attached is our PTO-2038 Credit Card Payment Form in the amount of \$\_\_\_\_\_ in payment of the fee under 37 C.F.R. § 1.17(p). 4. Filing under 37 C.F.R. § 1.97(d) This Information Disclosure Statement is being filed more than three months after the U.S. filing date and after the mailing date of a Final Rejection or Notice of Allowance, but before payment of the Issue Fee. Enclosed find our PTO-2038 Credit Card Payment Form in the amount of \$ in payment of the fee under 37 C.F.R. § 1.17(p); in addition: a. Statement under 37 C.F.R. § 1.97(e)(1). I hereby state that each item of information contained in this Information Disclosure Statement was cited

in a communication from a foreign patent office in a counterpart foreign

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application not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(1).

- b. Statement under 37 C.F.R. § 1.97(e)(2). I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(2).
- 5. The document(s) was/were cited in a search report by a foreign patent office in a counterpart foreign application. Submission of an English language version of the search report that indicates the degree of relevance found by the foreign office is provided in satisfaction of the requirement for a concise explanation of relevance. 1138 OG 37, 38.
- 6. A concise explanation of the relevance of the non-English language document(s) appears below:

Document AL1 (DE 10031569 A1) appears to describe a highly miniaturized relay in integrated circuit form, providing reliable operation and high isolation at high frequencies, including see-saw mounted plate alternately closing contacts on substrate when rocked. A copy of the English language abstract of document AL1 is enclosed as document AS7.

Document AM1 (DE 19820821 C1) appears to describe a electromagnetic relay with a rocker anchor. A copy of the English language abstract of document AM1 is enclosed as document AT7.

Document AL2 (EP 0780858 A1) appears to describe a miniature device to execute a predetermined function, in particular a microrelay. A copy of the English language abstract of document AL2 is enclosed as document AR8.

Document AM2 (EP 0869519 A1) appears to describe a planar magnetic motor and magnetic microactuator with such a motor. A copy of the English language abstract of document AM2 is enclosed as document AS8.

Document AO2 (FR 2572546 A1) appears to describe a bistable electromagnetic device for optical switching and matrix-configured optical switch using this device. A copy of the English language abstract of document AO2 is enclosed as document AT8.

Document AP2 (JP 4275519) appears to describe a optical matrix switch. A copy of the English language abstract of document AP2 is enclosed as AR9.

Document AL3 (JP 6251684) appears to describe a electromagnetic relay. A copy of the English language abstract of document AL3 is enclosed as document AS9.

Document AM3 (JP 54161952) appears to describe a photo switch. A copy of the English language abstract of document AM3 is enclosed as document AT9.

Document AP3 (WO 9927548) appears to describe a miniaturized flat spool relay. A copy of the English language abstract of document AP3 is enclosed as AR10.

7. Copies of the documents <u>AL1-AP1</u>, <u>AR1-AT1</u>, <u>AL2-AP2</u>, <u>AR2-AT2</u>, <u>AL3-AP3</u>, <u>AR3-AT3</u>, <u>AR4-AT4</u>, <u>AR5-AT5</u>, <u>AR6-AT6</u>, <u>AR7-AT7</u>, <u>AR8-AT8</u>, <u>AR9-AT9</u>, <u>AR10</u> are submitted herewith. In accordance with 37 C.F.R. § 1.98(a)(2), no copies of U.S. patents and patent application publications cited on the attached Form PTO-1449 are submitted.

■ 8.	Copies of the documents were cited by or submitted to the Office in an IDS that
	complies with 37 C.F.R. § 1.98(a)-(c) in Application No, filed
	, which is relied upon for an earlier filing date under 35 U.S.C.
	§ 120. Thus, copies of these documents are not attached. 37 C.F.R. § 1.98(d).

9. No copies of U.S. patents and patent application publications cited on the attached Form PTO-1449 are submitted in accordance with 1276 OG 55 because this application was filed after June 30, 2003.

It is respectfully requested that the Examiner initial and return a copy of the enclosed PTO-1449, and indicate in the official file wrapper of this patent application that the documents have been considered.

The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

-M 1.W-

Jeffrey S. Weaver Attorney for Applicants Registration No. 45,608

Date: 11 - 8-04

1100 New York Avenue, N.W. Washington, D.C. 20005-3934 (202) 371-2600

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INITIAL		NUM	BER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE	
	AA1	4,06	55,677	12/1977	Micheron et al.				
	AB1	4,46	51,968	07/1984	Kolm et al.				
-	ĀC1	4,49	06,211	01/1985	Daniel				
	AD1	4,57	0,139	02/1986	Kroll				
	AE1	4,75	55,706	07/1988	Harnden, Jr. et al.				
	AF1	5,01	6,978	05/1991	Fargette et al.				
	AG1	5,04	8,912	09/1991	Kunikane et al.				
	AH1	5,39	98,011	03/1995	Kimura et al.				
<u>.</u>	Al1	5,45	64,904	10/1995	Ghezzo et al.			_	
	AJ1	5,47	2,539	12/1995	Saia et al.				
	AK1	5,47	75,353	12/1995	Roshen et al.				
				FOREIGN	PATENT DOCUMENT	гѕ			
EXAMINER INITIAL			ÜMENT IBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION	
	AL1		100 31 569 A1	02/2001	DE	32.133	335 32 33	Yes	
	AM1	DE	198 20 821 C1	12/1999	DE			Yes No	
	AN1	0 45	2 012 A2 & A3	10/1991	EP			Yes No	
	AO1	0 68	5 864 A1	12/1995	EP			Yes No	
	AP1	0 709 911 A2		05/1996	EP			Yes No	
			OTHER (Inc	luding Auth	nor, Title, Date, Pertin	ent Pages, etc	.)		
	AR	1	International March 05, 20		ort for International App	olication No. PC	CT/US03/29254	mailed on	
	AS	1	Richard P. Fe Internet Sour	December 29, 1	1959, pp.1-12,				
	AT	1	E. Fullin, J. Gobet, H.A.C. Tilmans, and J. Bergvist, "A New Basic Technology for Magnetic Micro-Actuators", pp. 143-147.						
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EXAMINER INITIAL	1	NUM	UMENT BER	DATE	NAME	CLASS		SUB-CLASS	FILING DATE
INTIAL	AA2		7,132	09/1996	Takahashi				
	AB2	5,62	9,918	05/1997	Ho et al.				
	AC2	5,696,619		12/1997	Knipe et al.				_
	AD2	5,78	4,190	07/1998	Worley				
	AE2	5,81	318,316	10/1998	Shen et al.				-
	AF2	5,83	8,847	11/1998	Pan et al.				
	AG2	5,84	7,631	12/1998	Taylor et al.		•		
	AH2	5,89	898,515 04/1	04/1999	Furlani et al.				
	Al2	5,94	5,898	08/1999	Judy et al.				
	AJ2	5,98	2,554	11/1999	Goldstein et al.				
	AK2	6,01	6,092	01/2000	Qiu et al.				
	•			FOREIGN I	PATENT DOCUMENTS	_			
EXAMINER INITIAL		DOC	UMENT	DATE	COUNTRY	CLASS		SUB-CLASS	TRANSLATION
INITIAL	AL2		0 858 A1	06/1997	EP	CLASS	'	30B-0LA33	Yes
	AM2	0 86	9 519 A1	10/1998	EP				Yes No
	AN2	0 88	7 879 A1	12/1998	EP				Yes No
	AO2	2 57	2 546	05/1986	FR				Yes No
·	AP2	4-27	5519	10/1992	JP				Yes No
			OTHER (I	ncluding Autho	or, Title, Date, Pertinent F	Pages, e	tc.)		
	AR	2		1997, Journal (	S. Muller "Magnetically Ac of Microelectromechanical				
	AS	2	Solid-State Conference (Download	iel JJ Kruglick and Kristofer SJ Pister, "Project Overview: Micro-Relays", Tech. Digital -State Sensor and Actuator Workshop, 1998, Hilton Head 98 and 19th International erence on Electric Contact Phenomena, Nuremberg, Germany, Sept. 1998 roloaded from Internet Source: http://wwweecs.berkeley.edu/Kruglick/relays/relays.html, on July 12, 1999) 2 pgs.					
	AT	2	Characteriz	zation", Tech. D	ristofer S.J. Pister, "Bistab igital Solid-State Sensor a al Conference on Electric C gs.	nd Actua	ator \	Workshop, Hi	lton Head,
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	AA3		6,095	01/2000	Herbert				
	AB3	6,02	8,689	02/2000	Michalicek et al.		-	-	
	AC3	6,07	8,016	06/2000	Yoshikawa et al.				
	AD3	6,08	34,281	07/2000	Fullin et al.				
	AE3	6,09	4,293	07/2000	Yokoyama et al.				
	AF3	6,09	4,116	07/2000	Tai et al.				
·	AG3	6,11	5,231	09/2000	Shirakawa				
	AH3	6,12	4,650	09/2000	Bishop et al.				
	Al3	6,14	3,997	11/2000	Feng et al.				
	AJ3	6,16	0,230	12/2000	McMillan et al.				
,	AK3	6,29	7,072 B1	10/2001	Tilmans et al.				
			·	FOREIGN	PATENT DOCUMENTS	<u> </u>		1	
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INITIAL			IBER 51684	09/1994	JP	CLASS	SUB-CLASS	TRANSLATION Yes	
	AL3	0 20	71004	00,1004	J			No	
	AM3	54-1	61952	12/1979	JP			Yes No	
	AN3	wo	97/39468	10/1997	PCT			Yes No	
	AO3	wo	98/34269	08/1998	PCT			Yes No	
	AP3	wo	99/27548	06/1999	PCT			Yes No	
			OTHER (I	ncluding Aut	hor, Title, Date, Pertiner	nt Pages, e	tc.)		
	AR	<u>3</u>		9, IEEE Journ	iver Brand, "Magnetic Mic al of Microelectromechan				
	AS	3		"P10D Electricity & Magnetism Lecture 14", Internet Source: http://scitec.uwhichill.edu.bb/cmp/online/P10D/Lecture14/lect14.htn, January 3, 2000, pp.1-5.					
	АТ	3			Latching to 5-relays SPD ne Relays, 1998.	OT DC TO C	Band", Series F	RF 341, product	
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	AA4	6,410	0,360 B1	06/2002	Steenberge				
	AB4	6,51	1,894 B2	01/2003	Song				
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	AO4							Yes No	
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	AR	<u>4</u>			g Microelectromagnet 01 Elsevier Science E			ors A 91 (July	
	AS	4	Multimorph	n Cantilever A	er, W.N. Carr, " A Bis actuators", 11th Annua ermany, IEEE, Janua	al Workshop on	Micro Electrical N		
	AT	4	Normally C	Closed, and M	ark G. Allen, "Integraf lulti-Pole Devices", 19 IEEE, June 16-19, 19	997 Internationa 997, pp. 1149-1	I Conference on 3 152.	Solid-State	
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	AR	<u>5</u>	William P. Micromach	Taylor, Olive	er Brand, and Mark G. ", Journal of Microelec	Allen. "Fully Inte	egrated Magnetic				
	AS	<u>5</u>			, "A Fully-Packaged Electromagnetic Microrelay", Proc. MEMS '99, Orlando 7-21, 1999, copyright IEEE 1999, pp. 25-30.						
	АТ	<u>5</u>	http://home	William Trimmer, "The Scaling of Micromechanical Devices", Internet Source: http://home.earthlink.net/-trimmerw/mems/scale.html on January 3, 2000 (adapted from article "Microrobots and Micromechanical Systems by W.S.N. Trimmer, Sensors and Actuators, Vol. 19, No. 3, September 1989, pp. 267-287, and other sources)							
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	AN6						Yes No	
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	AO6						No Yes	
	AP6	OTHER	 (Including A	uthor, Title, Date, Pe	rtinent Pages, etc	:.)	No	
	AR	John A. V Using ME	Vright and Yu MS Technolo	i-Chong Tai, "Micro-Mogy", Proceedings: 46t	iniature Electroma	gnetic Switches		
John A. Wright, Yu-Chong Tai and Gerald Lilienthal, "A Magnetostatic MEMS Sy Brushless Motor Commutation", Proceedings Solid State Sensor and Actuator W Hilton Head, 1998, June 1998, pages 304-307.								
	АТ	MEMS M	agnetic Actua	ong Tai, and Shih-Chi ator", Tranducers '97, s, Chicago, June 16-19	1997 International			
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					ATTY. DOCKET NO. <b>2040.0410001</b>		APPLICATION NO. 10/664,404		
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	AR	7	Ann, Chon Multilevel N	g H. & Allen, M deander Magne	ark G., " A Fully Integrated etic Core, 1992 IEEE, Soli Head Island, South Carolir	d Microma d-State S	agnetic Actuator Vensor and Actuat	or Workshop,	
	AS	<u>7</u>	English-La	English-Language Abstract of DE 10031569, published February 1, 2001, 1 page.					
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					ATTY. DOCKET N 2040.0410001	NO.	APPLICATION NO 10/664,404	
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	AR	8	English-La	anguage Absti	act of EP 0780858, p	published June :	25, 1997, 1 page	
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